**PROGRAM PACKAGE IN FINANCE 2**

**MID-TERM TEST**

**Requirements**

- Page limit: 15 pages (not include appendix)

- Submission time: 11.59PM 12-Apr-2023

- Write R code to achieve all the tasks (except for the literature review)

- Submit your R script (.R file extension) with just your student ID as the name of the file.

- Submit your Word file with just your student ID as the name. The file should contain:

+ your entire set of codes (in the appendix section)

+ in the main section: your code and then your results after executing the code (you can screenshot the results then paste them to the Word file)

+ your comments and responses to all the tasks

- Do not change the name of the Excel file that contains the data in your script

- Please DO NOT USE packages other than those mentioned in the materials (because you are required to use what we learn to code to obtain the specified results, rather than use packages).

**Topic:**

* If your student ID ends with an even number => Trade credit (Payable) + Only firms listed on HOSE
* If your student ID ends with an odd number => Trade credit (Receivable) + Only firms listed on HNX

**Tasks:**

**1 (1 point).** **Perform literature review** on your assigned topic (you need to document this task), then choose variables that can affect trade credit:

+ 1 discrete variable. Note: since data doesn’t have discrete variables, you should choose variable that can be transformed to discrete variable from continuous variables in the dataset. You are free determine how many categories you can create with the continuous variable (but some sound rationale would be welcome)

+ 1 continuous variable

- The number of papers should be from 7 to 10 papers.

**2 (1 point). Create Dataset**

+ According to the last three numbers of your Student ID (aaa), create a random sample that is replicable, using:

* set.seed(aaa)
* sample() function to extract data
* sample size = 100 firms

+ If your random sample has NA values, just impute the value with the median value of the corresponding variable.

**3 (2 points). Report**

- 5 firms with highest trade credit

- 5 firms with lowest trade credit

- the name of industries which the firms belong to

- provide descriptive statistics with median, mean, max, min, standard deviation of trade credit of:

- different categories of the discrete variable

- groups of above/below median of the continuous variable

- Do you have any comments on the possible link between the discrete and continuous variables with trade credit?

- Is it in line with your literature review?

**4 (3 points). Data visualization**

1. provide histogram of trade credit

2. provide scatter plot of trade credit with the continuous variable

3. provide boxplot of trade credit with the discrete variable (different colour for different categories of discrete variable)

4. provide a plot that allow the combination of continuous, discrete variables and trade credit

- For each of the above plots, give your comments

- Summarize the main points that you can draw from the data visualization part, please try to relate to the literature review as well as the sections above

**5 (2 point). Regression**

- Conduct regression analysis of the determinants of trade credit

- Perform test of multicollinearity, heteroskedasticity, then determine if any correction measure is required to obtain reliable estimates.

- Comments on the determinants

**6 (1 point). Using LOOP:**

- Count the number of firms in an industry (if you are given an industry name, you can count the number of firms in that industry)

- Count the number of firms in an industry and with trade credit above a certain value (if you are given an industry name and a specific value of trade credit, you can count the number of firms in that industry and above that certain value)